

## CLAIMS

What is claimed is:

1. A wafer processing system comprising:
  - a load-lock having a single wafer support for accommodating only a single
  - 5 wafer at a time, the load-lock having an integral cooling unit for cooling a wafer;
  - a transport module having a load chamber, a transfer chamber, and a
  - pass-through chamber located between the load chamber and the transfer
  - chamber, the load chamber being coupled to the load lock;
  - an intermediate process module coupled to the load chamber and the
  - 10 transfer chamber;
  - a first set of process modules coupled to the load chamber; and
  - a second set of process modules coupled to the transfer chamber.
2. The system of claim 1 wherein a process module in the first set of process
- modules includes a pre-clean module.
3. The system of claim 1 wherein a process module in the first set of process
- 15 modules includes a physical vapor deposition module.
4. The system of claim 1 wherein a process module in the first set of process
- modules includes a chemical vapor deposition module.
5. The system of claim 1 wherein a process module in the second set of
- 20 process modules includes a pre-clean module.
6. The system of claim 1 wherein a process module in the second set of
- process modules includes a chemical vapor deposition module.

7. The system of claim 1 wherein a process module in the second set of process modules includes a physical vapor deposition module.

8. The system of claim 1 wherein the single wafer support is a pedestal.

9. The system of claim 1 wherein the intermediate process module is configured as a degas module.

10. The system of claim 1 wherein the pass-through chamber is configured as a cooling station.

11. The system of claim 1 wherein the intermediate process module is configured as a pre-clean module.

12. The system of claim 1 wherein the intermediate process module is configured as a PVD module.

13. The system of claim 1 wherein the intermediate process module is configured as a CVD module.

14. A method for moving a wafer in a wafer processing system comprising:  
transferring the wafer to a first process module coupled to a first chamber of a transport module;

cooling the wafer in a cooling station located between the first chamber of the transport module and a second chamber of the transport module;

transferring the wafer to a second process module coupled to the second chamber of the transport module;

transferring the wafer to a load lock coupled to the second chamber of the transport module; and

cooling the wafer in the load lock.

15. The method of claim 14 wherein the load lock is a single-wafer load lock having a single wafer support.

16. The method of claim 15 wherein the single wafer support is a pedestal.

17. A wafer processing system comprising:

a load lock having an integral cooling unit for cooling a wafer;

a transport module having a first chamber, a second chamber, and a pass-through chamber between the first chamber and the second chamber, the first chamber being coupled to the load lock;

an intermediate process module coupled to the first chamber;

a process module coupled to the first chamber; and

another process module coupled to the second chamber.

18. The system of claim 17 wherein the load lock is a single-wafer load lock having a single wafer support.

19. The system of claim 18 wherein the single wafer support is a water-cooled pedestal.

20. The system of claim 17 wherein the intermediate process module is also coupled to the second chamber.

21. The system of claim 17 wherein the pass-through chamber is configured as a cooling station.

22. A method for moving a wafer in a wafer processing system comprising:

transferring the wafer from a load lock to an intermediate process module coupled to a load chamber and a transfer chamber, the load chamber being coupled to the load lock;

transferring the wafer from the intermediate process module to a process module coupled to the transfer chamber;

transferring the wafer from a process module coupled to the transfer chamber to a pass-through chamber located between the load chamber and the transfer chamber;

cooling the wafer in the pass-through chamber;

transferring the wafer to a process module coupled to the load chamber;

transferring the wafer to the load lock; and

cooling the wafer in the load lock.

23. The method of claim 22 wherein the load lock has a single wafer support for accommodating a single wafer at a time.

24. The method of claim 22 wherein the load lock has a single water-cooled pedestal.